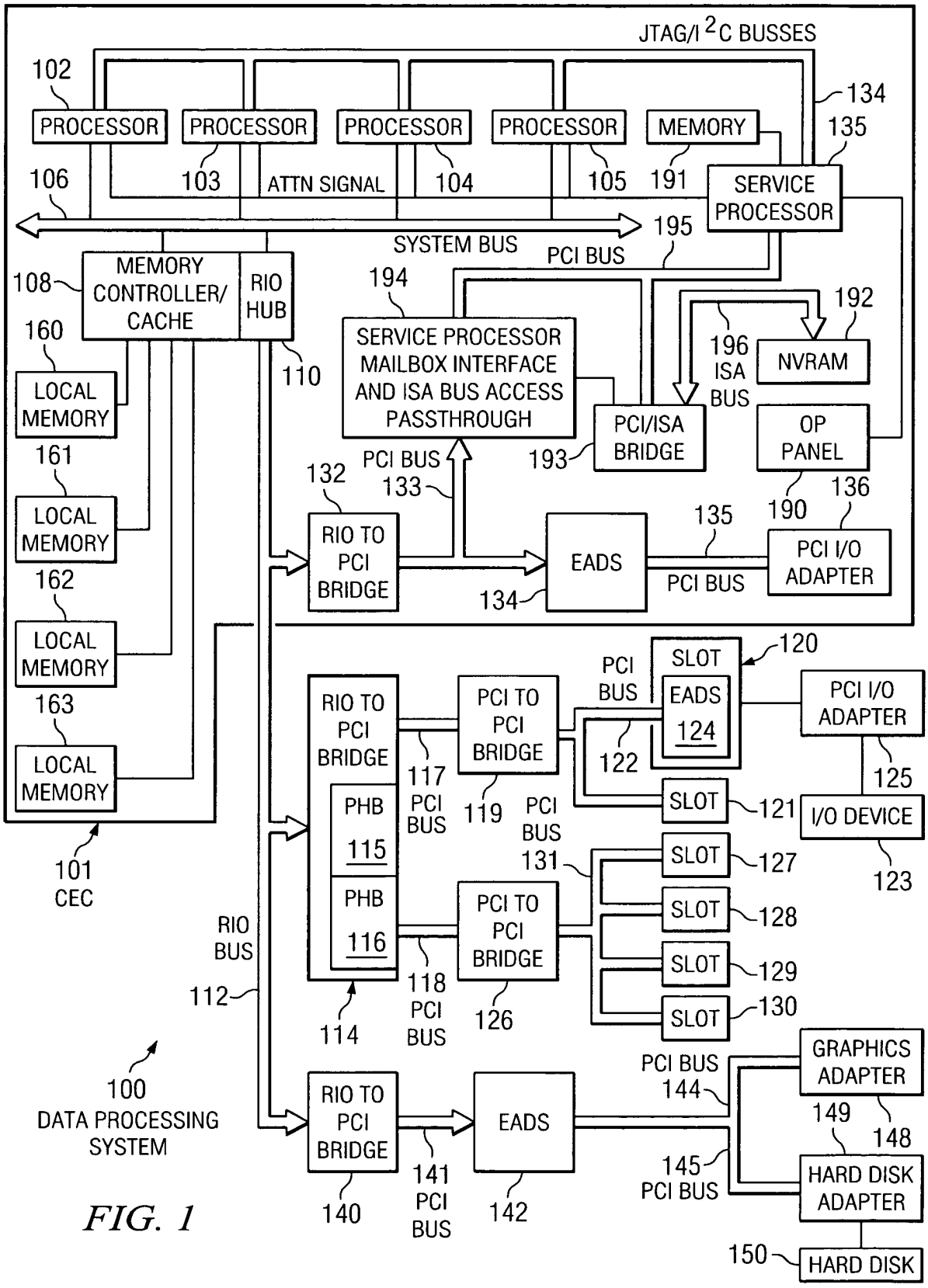
JTAG/I 2C BUSSES
102
PROCESSOR
PROCESSOR
PROCESSOR
PROCESSOR
MEMORY
134
135
106
103
ATTN SIGNAL
104
105
191
SERVICE PROCESSOR
195
SYSTEM BUS
PCI BUS
108
MEMORY CONTROLLER/ CACHE
RIO HUB
194
192
160
SERVICE PROCESSOR MAILBOX INTERFACE AND ISA BUS ACCESS PASSTHROUGH
196 ISA BUS
NVRAM
110
LOCAL MEMORY
PCI/ISA BRIDGE
193
OP PANEL
161
PCI BUS
132
133
190
136
LOCAL MEMORY
RIO TO PCI BRIDGE
EADS
135
PCI I/O ADAPTER
162
134
PCI BUS
LOCAL MEMORY
120
SLOT
PCI BUS
EADS
124
PCI I/O ADAPTER
163
RIO TO PCI BRIDGE
PCI TO PCI BRIDGE
122
125
LOCAL MEMORY
117 PCI BUS
119
PCI BUS
SLOT
121
I/O DEVICE
PHB
115
131
SLOT
127
123
101
CEC
PHB
116
PCI TO PCI BRIDGE
SLOT
128
RIO BUS
SLOT
129
112
118 PCI BUS
126
SLOT
130
114
PCI BUS
144
GRAPHICS ADAPTER
100
DATA PROCESSING SYSTEM
RIO TO PCI BRIDGE
EADS
149
148
145 PCI BUS
HARD DISK ADAPTER
141 PCI BUS
140
142
150
HARD DISK

FIG. 1

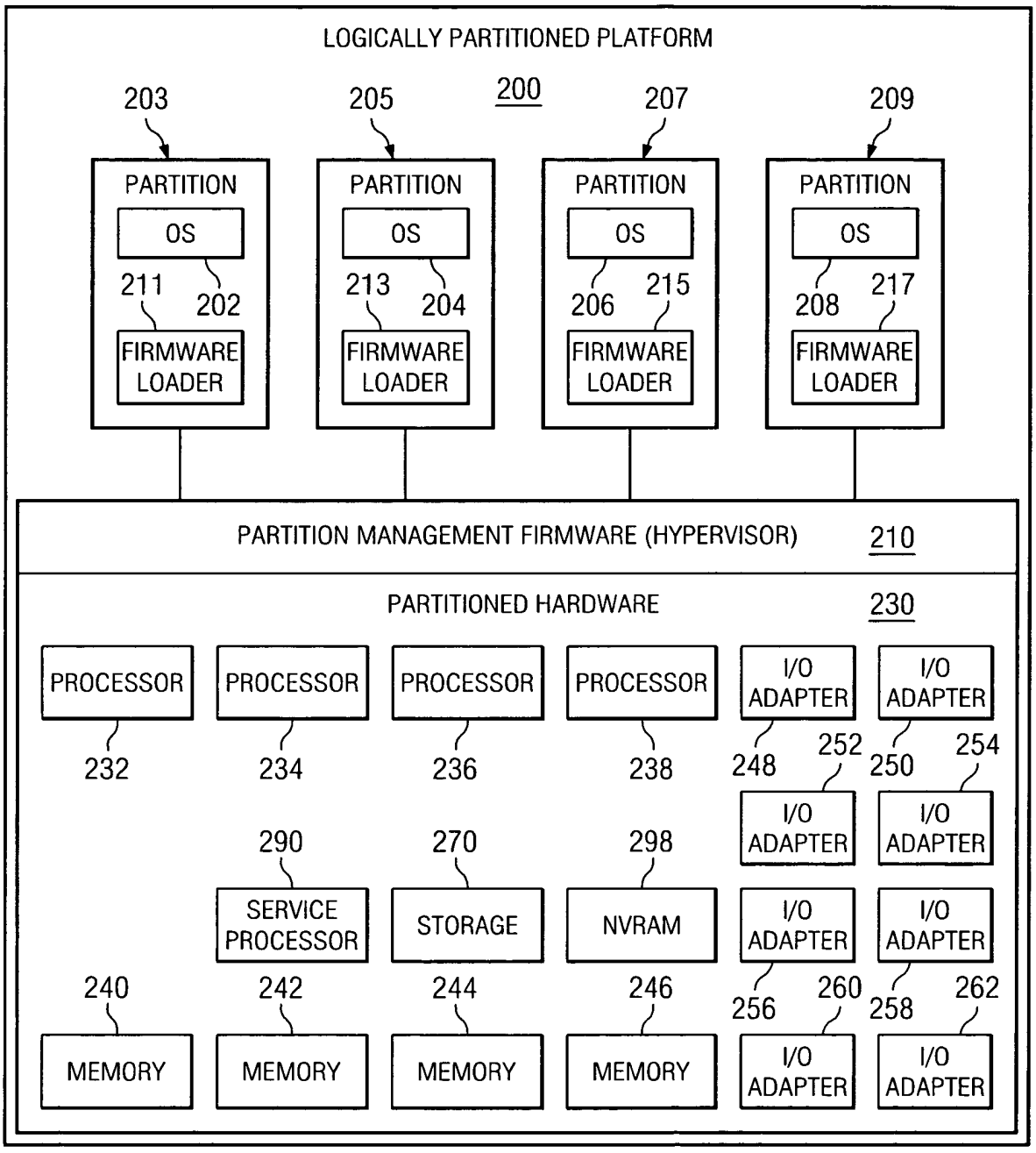
LOGICALLY PARTITIONED PLATFORM
200
203
205
207
209
PARTITION
OS
211
202
213
204
206
215
208
217
FIRMWARE LOADER
PARTITION MANAGEMENT FIRMWARE (HYPERVISOR)
210
PARTITIONED HARDWARE
230
PROCESSOR
232
234
236
238
I/O ADAPTER
248
250
252
254
290
270
298
SERVICE PROCESSOR
STORAGE
NVRAM
240
242
244
246
256
258
260
262
MEMORY

FIG. 2

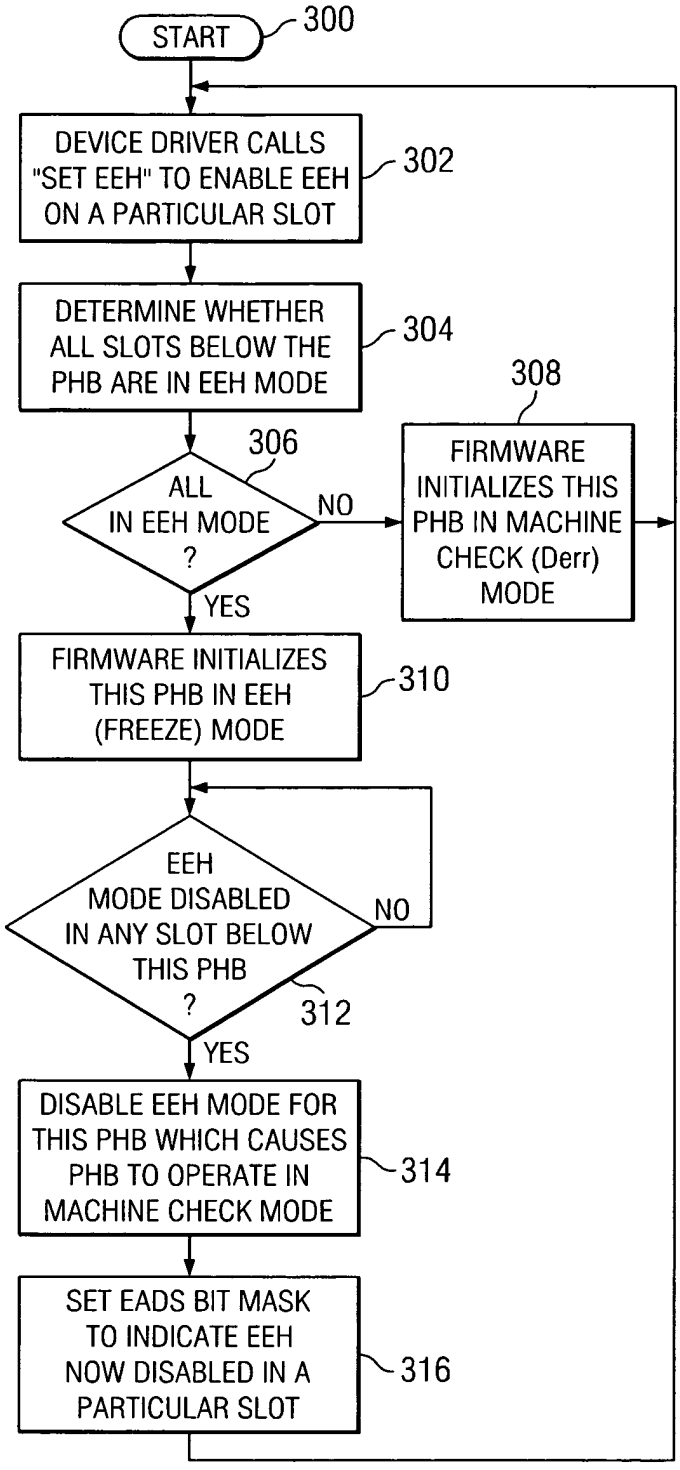
START
300
DEVICE DRIVER CALLS "SET EEH" TO ENABLE EEH ON A PARTICULAR SLOT
302
DETERMINE WHETHER ALL SLOTS BELOW THE PHB ARE IN EEH MODE
304
306
ALL IN EEH MODE ?
NO
308
FIRMWARE INITIALIZES THIS PHB IN MACHINE CHECK (Derr) MODE
YES
FIRMWARE INITIALIZES THIS PHB IN EEH (FREEZE) MODE
310
EEH MODE DISABLED IN ANY SLOT BELOW THIS PHB ?
NO
312
YES
DISABLE EEH MODE FOR THIS PHB WHICH CAUSES PHB TO OPERATE IN MACHINE CHECK MODE
314
SET EADS BIT MASK TO INDICATE EEH NOW DISABLED IN A PARTICULAR SLOT
316

FIG. 3

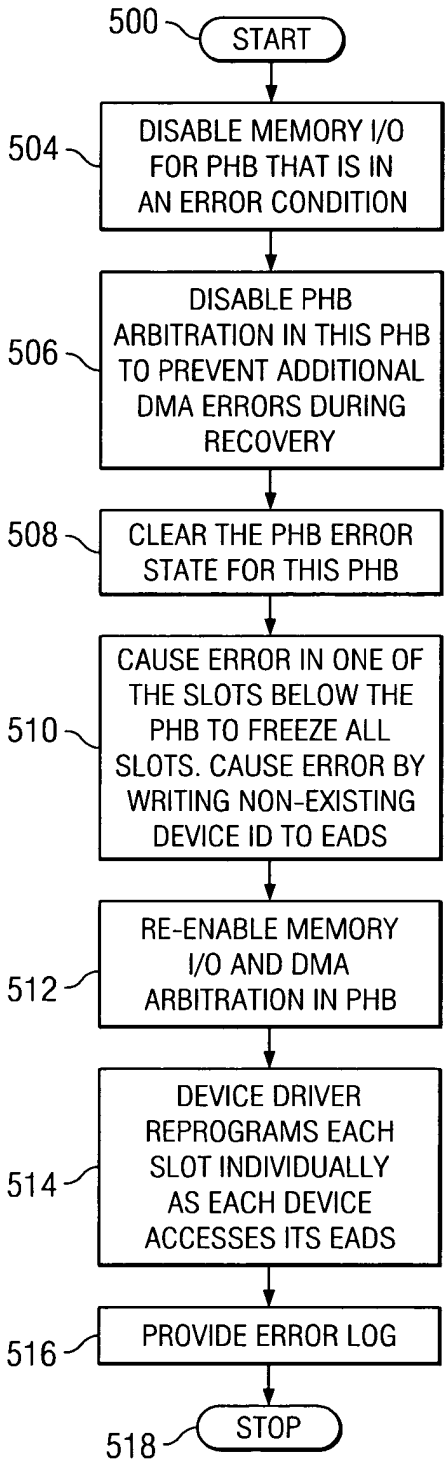
500
START
504
DISABLE MEMORY I/O FOR PHB THAT IS IN AN ERROR CONDITION
506
DISABLE PHB ARBITRATION IN THIS PHB TO PREVENT ADDITIONAL DMA ERRORS DURING RECOVERY
508
CLEAR THE PHB ERROR STATE FOR THIS PHB
510
CAUSE ERROR IN ONE OF THE SLOTS BELOW THE PHB TO FREEZE ALL SLOTS. CAUSE ERROR BY WRITING NON-EXISTING DEVICE ID TO EADS
512
RE-ENABLE MEMORY I/O AND DMA ARBITRATION IN PHB
514
DEVICE DRIVER REPROGRAMS EACH SLOT INDIVIDUALLY AS EACH DEVICE ACCESSES ITS EADS
516
PROVIDE ERROR LOG
518
STOP

FIG. 5

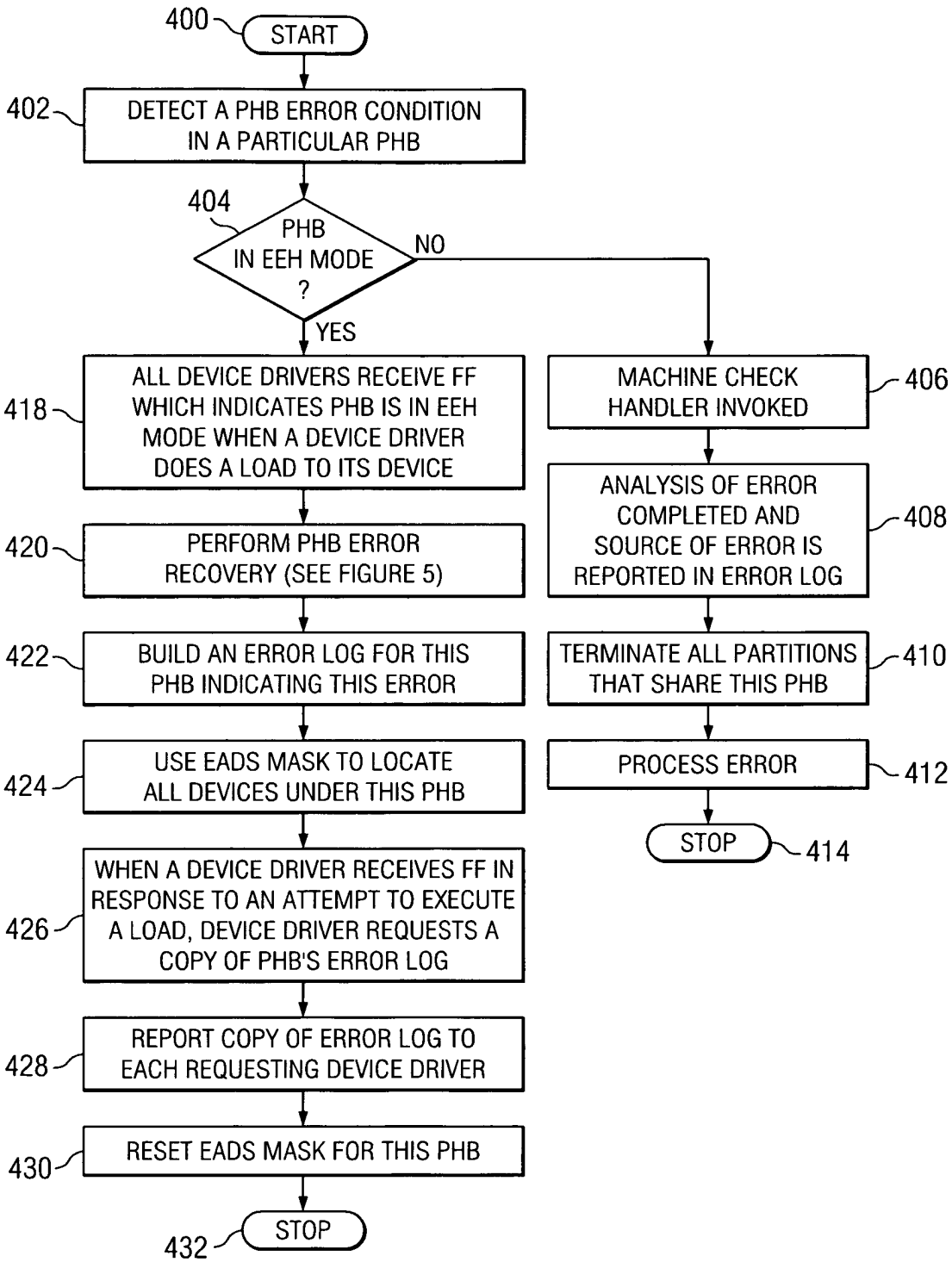
400
START
402
DETECT A PHB ERROR CONDITION IN A PARTICULAR PHB
404
PHB IN EEH MODE ?
NO
YES
418
ALL DEVICE DRIVERS RECEIVE FF WHICH INDICATES PHB IS IN EEH MODE WHEN A DEVICE DRIVER DOES A LOAD TO ITS DEVICE
420
PERFORM PHB ERROR RECOVERY (SEE FIGURE 5)
422
BUILD AN ERROR LOG FOR THIS PHB INDICATING THIS ERROR
424
USE EADS MASK TO LOCATE ALL DEVICES UNDER THIS PHB
426
WHEN A DEVICE DRIVER RECEIVES FF IN RESPONSE TO AN ATTEMPT TO EXECUTE A LOAD, DEVICE DRIVER REQUESTS A COPY OF PHB'S ERROR LOG
428
REPORT COPY OF ERROR LOG TO EACH REQUESTING DEVICE DRIVER
430
RESET EADS MASK FOR THIS PHB
432
STOP
406
MACHINE CHECK HANDLER INVOKED
408
ANALYSIS OF ERROR COMPLETED AND SOURCE OF ERROR IS REPORTED IN ERROR LOG
410
TERMINATE ALL PARTITIONS THAT SHARE THIS PHB
412
PROCESS ERROR
414
STOP

FIG. 4